Discrimination against people with severe mental illness and their access to social capital: findings from the Viewpoint survey

Short title: Discrimination and access to social capital

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This is the accepted manuscript for the article.

Webber, M., Corker, E., Hamilton, S., Weeks, C., Pinfold, V., Rose, D., Thornicroft, G. & Henderson, C. (2014) Discrimination against people with severe mental health illness and their access to social capital: findings from the Viewpoint Survey, *Epidemiology and Psychiatric Sciences*, 23 (2), 155-165

The version of record is here
http://journals.cambridge.org/action/displayAbstract?aid=9245438&fileId=S2045796013000243

Abstract

Aims

Discrimination against people with severe mental illness is an international problem. It is associated with reduced social contact and hinders recovery. This paper aims to evaluate if experienced or anticipated discrimination is associated with social capital, a known correlate of mental health.

Methods

Data from the annual Viewpoint cross-sectional survey of people with severe mental illness (n=1016) were analysed. Exploratory univariate analysis was used to identify correlates of social capital in the sample, which were then evaluated in linear regression models. Additional hypotheses were tested using t-tests.

Results

Experienced discrimination made a modest contribution to the explained variance of social capital. Experienced discrimination from friends and immediate family was associated with reduced access to social capital from these groups, but this was not found for wider family, neighbours or mental health staff. Experience of discrimination in finding or keeping a job was also associated with reduced access to social capital.

Conclusions

Further longitudinal research is needed to determine how resources within people's networks can help to build resilience which reduces the harmful effect of discrimination on mental health.

Keywords

Discrimination; stigma; social capital; severe mental illness

Introduction

Discrimination against people with severe mental illness is a global problem (Thornicroft *et al.*, 2009; Świtaj *et al.*, 2012; Aromaa *et al.*, 2011b; Rose *et al.*, 2011; Kapungwe *et al.*, 2010; Evans-Lacko *et al.*, 2012a). Sources of discrimination include friends and family (Thornicroft, 2006; Henderson *et al.*, 2012), the general public (Thornicroft, 2006), mental health professionals (Wahl and Aroesty-Cohen, 2010), emergency department clinicians (van Nieuwenhuizen *et al.*, 2012, in press) and public and private institutions (Corrigan *et al.*, 2004). However, people with severe mental illness appear to have more social tolerance towards others with similar diagnoses, though self-stigma is common (Aromaa *et al.*, 2011a).

Discrimination can be defined as the behavioural component of stigma (Link and Phelan, 2001), which also includes ignorance (a problem of knowledge) and prejudice (a problem of attitude) (Goffman, 1970; Thornicroft, 2006). People with severe mental illness who experience discrimination in their close environment are more likely to anticipate it (Thornicroft *et al.*, 2009); this leads to avoidance of seeking work and relationships, hampering recovery (Link *et al.*, 2001).

Supporting the recovery of people with severe mental illness is a priority for mental health services (Slade, 2009). This includes 'social recovery', which requires the development of social environments that are both accepting and enabling (Beresford, 2002). Anti-stigma campaigns such as Time to Change (Henderson and Thornicroft, 2009) support this by seeking to change public attitudes towards mental illness. Social contact interventions are included in these programmes as a means of reducing discrimination (Evans-Lacko *et al.*, 2012b). However, social engagement itself plays

an important role in recovery from severe mental illness because it helps to build social capital (Webber, 2005; Tew *et al.*, 2012).

Social capital is increasingly being recognised as important for health and well-being (Kawachi *et al.*, 2007). It is a multi-dimensional concept encompassing diverse aspects such as trust (Coleman, 1988), social norms and reciprocity (Putnam, 2000), features of social structures and networks (Lin, 2001; Burt, 1992) and the resources embedded within them (Bourdieu, 1997). Although epidemiological studies have largely drawn upon Putnam's (2000) conception of social capital (De Silva *et al.*, 2005), social network approaches more clearly align the concept with recovery discourses (Webber, 2005).

Defined as the resources that are embedded within social networks, social capital can lead to greater occupational prestige, income and political influence when mobilised (Lin and Erickson, 2008; Lin, 2001). Health gains can be accrued by investing in relationships which may promote positive health behaviours (Zambon *et al.*, 2010); provide employment opportunities (Flap, 1999); and reinforce an individual's identification with a group and help to maintain subjective social status (Song, 2007).

Social capital is negatively correlated with depression (Song, 2011; Webber and Huxley, 2007; Webber *et al.*, 2011) and severe mental illnesses such as schizophrenia or bi-polar disorder (Dutt and Webber, 2010). Longitudinally, it is associated with changes in quality of life in depression (Webber *et al.*, 2011). However, an association between discrimination and reduced access to network resources has not yet been empirically demonstrated.

There is a strong theoretical rationale for an association of discrimination and social capital in people with severe mental illness. Bourdieu (1997), a key contributor to the development of the concept of social capital, argued that social capital accrued within durable networks of people with strong relationships and shared interests. Social network researchers identified the 'homophily principle' as being important to this process whereby people associate with others similar to themselves (Lin, 2001). People within networks predominantly composed of those with high socio-economic status have improved life chances, such as occupational attainment (Lin *et al.*, 1981), but they exclude those who are different from themselves as they are perceived as not being able to contribute to the group's social capital (Lin and Ao, 2008). People with severe mental illness are commonly characterised as transgressing social norms and distinguished from other members of society (Thornicroft, 2006). It follows that discrimination due to mental health stigma may restrict the access of people with severe mental illness to resourceful social networks and the social capital held within them. Therefore, it is important to explore the extent to which discrimination is associated with social capital in people with severe mental illness to empirically verify this assumption.

It is possible, though, that low access to social capital may increase perceptions of discrimination. People who do not have full access to resourceful networks within their community may attribute this to discrimination. Studies of perceived discrimination amongst ethnic minority groups in the US exemplify this possibility (Goto *et al.*, 2002; Pérez *et al.*, 2008; Estrada *et al.*, 2008). Although perceptions of discrimination are different from actual experiences of discrimination, careful

measurement of both social capital and discrimination is required to fully understand the direction of any cross-sectional associations.

This paper aims to test the following hypotheses:

1) that experienced and anticipated discrimination are associated with access to reduced social capital, whilst controlling for confounding variables;
2) that experienced discrimination from specific social ties such as family, friends, neighbourhoods and mental health professionals is associated with reduced access to social capital from these social ties; and
3) that experienced discrimination in different life domains (such as employment, social life and family) is associated with reduced access to corresponding domains of social capital.

Method

Viewpoint (Corker *et al.*, 2013; Hamilton *et al.*, 2011) is an annual survey of mental health service users in England which aims to evaluate outcomes of the Time to Change programme (Henderson and Thornicroft, 2009; Henderson and Thornicroft, 2013), the largest ever programme to reduce discrimination against people with mental health problems in England. Phase 1 of this programme aimed to achieve a 5% reduction in discrimination over four years through a national social marketing campaign launched in 2009, and national and local interventions which engaged individuals, communities and professional groups to improve the attitudes and behaviour of the general public toward people with mental health problems. To evaluate the effect of Phase 2 (2011-2015) on social capital in addition to

discrimination, a measure of social capital was added to the survey in 2011 to provide a baseline.

Data was collected via a cross-sectional telephone survey with separate samples of users of specialist National Health Service (NHS) mental health services each year. Participants were aged between 18 and 65, had used NHS mental health services in the previous six months, but were not hospital in-patients or those with a diagnosis of dementia. Participants were selected from five NHS mental health trusts which were chosen on the basis of the level of socioeconomic deprivation in their catchment area, determined from census data. Full details about the methodology of the Viewpoint surveys is available elsewhere (Henderson *et al.*, 2012).

This paper uses data from the 2011 Viewpoint survey. 9,120 invitation packs were posted to eligible participants, of whom 1016 undertook telephone interviews, representing a response rate of 11.1%. Although low, this response rate was an improvement on the three previous surveys which achieved response rates no higher than 8% (Henderson *et al.*, 2012).

The 22-item version of the Discrimination and Stigma Scale (DISC-12) (Thornicroft *et al.*, 2009; Brohan *et al.*, in press) was used to measure participants' reports of experienced and anticipated discrimination. This interviewer-administered scale contains 22 items related to negative experiences of mental health–related discrimination over the prior twelve months and four items related to anticipated discrimination. A "not applicable" option is available for items about situations that were not relevant to the participant in the previous 12 months. Additional questions

on positive discrimination were asked in the interview, but were not analysed for this paper. The DISC-12 has robust psychometric properties in this population (Thornicroft *et al.*, 2009; Brohan *et al.*, in press).

The Resource Generator-UK (RG-UK) (Webber and Huxley, 2007) was used to measure participants' access to social capital. In the tradition of social network measures such as the Name Generator (McCallister and Fischer, 1978) and Position Generator (Lin and Dumin, 1986), this instrument measures participants' access to social resources within their own social network. The RG-UK was derived from a version developed in The Netherlands (van der Gaag and Snijders, 2005) and its items have been made culturally relevant and validated for use in the UK general population. It has good reliability and validity (Webber and Huxley, 2007) and has been used in samples of people with mental health problems (e.g. Murray *et al.*, 2007; Dutt and Webber, 2010; Webber and Huxley, 2007; Webber *et al.*, 2011) and produced valid findings.

The RG-UK asks participants whether or not they could obtain access to 27 skills and resources within their social network within one week if they needed it. If they respond 'yes' to an item, they are asked to indicate the nature of the social tie – i.e. close family, wider family, friends, colleague, acquaintance, mental health professional – through which they could access each skill or resource. The instrument has four sub-scales each representing a concrete domain of social capital to which an individual may have access: domestic resources, personal skills, expert advice and problem solving resources. Participants were additionally asked if they personally possessed 14 of the items as it would be unlikely for them to ask anyone for these

items if they personally possessed them. This formed a separate human capital sub-scale which was entered as a potential confounding variable in multivariate analysis (Webber and Huxley, 2007) .

Socio-demographic and clinical characteristics were also obtained from the sample.

RG-UK total and sub-scale scores were calculated by scoring items accessible within a participant's network as 1 and those not as 0, and then summing to calculate scale totals. Experienced discrimination DISC scores were calculated by scoring any reported instance of negative discrimination as 1 and situations in which no discrimination was reported as 0. The overall score was calculated as the sum of reported discrimination items divided by the number of items answered, multiplied by 100 to give a percentage of items in which discrimination was reported. Items were excluded where the participant had not been in the situation asked about in the previous 12 months, and therefore could not have experienced discrimination, e.g. in relation to starting a family. The four anticipated discrimination items were analysed individually as binary variables (0 = no, 1 = yes).

We used t-tests to compare mean RG-UK scores in the Viewpoint sample with a UK general population sample (Webber and Huxley, 2007) and a sample of people with severe mental illness (Murray *et al.*, 2007). Univariate analysis using Pearson correlations, t-tests, one-way analysis of variance and Spearman's rank correlations explored the relationship between anticipated and experienced discrimination, socio-demographic and clinical variables and the RG-UK. To test hypothesis one, we entered variables with a significant association with RG-UK total scores ($p<0.05$) in

blocks into a linear regression model to explore the independent relationship between discrimination and access to social capital (adjusted for human capital). Hypotheses two and three were tested using t-tests. All analysis was conducted using SPSS v.15.

The study received ethical approval from Riverside NHS Ethics Committee (ref. 07/H0706/72)

Results

The demographic characteristics of the Viewpoint sample are shown in table 1. In comparison with national data (Her Majesty's Government, 2012), women (59.3% vs. 51.8%) and people of white ethnicity (85.4% vs. 80.0%) were oversampled in our population. Otherwise, it was representative of people using secondary mental health services in England.

Table 1 - Demographic characteristics of participants

Demographic Characteristic	Participants (n=1016) n (%)
Gender	
Male	411 (40.5)
Female	602 (59.3)
Transgender	2 (0.2)
Age (years)*	45 (11.2)
Ethnicity	
White British	868 (85.4)
Other White	36 (3.5)
Black or Mixed Black and White	40 (3.9)
Asian or Mixed Asian and White	52 (5.2)
Other Mixed	5 (0.5)
Other	7 (0.7)
Did not wish to disclose	7 (0.7)
Employment status	

Unemployed	485 (47.7)
Part-time employed	90 (8.9)
Full-time employed	121 (11.9)
Self-employed	28 (2.8)
Retired	95 (9.4)
Volunteering	52 (5.1)
Training / education	20 (2.0)
Other	124 (12.2)
Did not wish to disclose	1 (0.1)
Main Diagnosis	
Depression	311 (30.6)
Bipolar disorder	184 (18.1)
Schizophrenia	116 (11.4)
Anxiety disorder	82 (8.1)
Personality Disorder	55 (5.4)
Schizoaffective disorder	26 (2.6)
Eating disorder	6 (0.6)
Multiple diagnoses	4 (0.4)
Other	121 (11.9)
Missing	109 (10.7)
Received involuntary treatment	
Yes	353 (34.7)
No	663 (65.3)

* Mean (s.d.)

88.2% (n=896) of our sample reported experiencing discrimination in at least one life domain, with 58.0% (n=589) reporting it in at least four life domains. Our sample had access to a mean of 13.9 (s.d.=6.0) out of 27 social capital resources, which was fewer than a comparison general population sample (mean=17.2, s.d.=5.9) (Webber and Huxley, 2007), but more than a similar sample of people receiving specialist mental health care in London (mean=10.8, s.d.=5.8) (Murray *et al.*, 2007).

The RG-UK was inversely correlated with experienced discrimination on the DISC ($r=-0.219$, $p<0.001$), a pattern which was repeated for all of the sub-scales (domestic resources $r=-0.206$, $p<0.001$; expert advice $r=-0.182$, $p<0.001$; personal skills $r=-0.164$, $p<0.001$; problem solving resources $r=-0.154$, $p<0.001$). However, the human

capital sub-scale was not correlated with DISC (r=0.029, p=0.353). The shared variance of RG-UK and DISC was low (4.8%) indicating that the two instruments measured distinct constructs.

Access to social capital resources as measured by the RG-UK was also lower for those who chose not to apply for a job (13.3 vs. 14.5, t=-2.9, df=899, p=004); start adult education (12.9 vs. 14.5, t=-3.7, df=899, p<0.001); or enter into a new relationship (13.1 vs 14.8, t=-4.4, df=899, p<0.001) because of anticipated discrimination than those who did not anticipate any discrimination in these life domains. However, people who concealed their diagnosis from others due to anticipated discrimination (14.0 vs. 13.8, t=0.3, df=899, p=0.74) had access to the same quantity of social capital as those who did not.

To test the hypothesised independent association of discrimination and access to social capital, we first explored the univariate associations of potential confounding variables with the RG-UK. The RG-UK social capital scale was positively correlated with RG-UK human capital scale, but inversely correlated with increasing age and length of time in contact with mental health services (table 2). Additionally, women, university graduates, employed people, people with a primary diagnosis of an affective disorder and those with no prior history of being involuntary detained in hospital had increased access to social capital.

Table 2: Univariate correlates of access to social

Variable	Sample descriptives n (%)	RG-UK Mean (s.d.)	Association with RG-UK total score
Human capital (RG-UK)	2.30 (1.70)*	n/a	r=0.44, p<0.001
Age (years)	45.00 (11.16)*	n/a	r=-0.14, p<0.001
Gender			
Male	411 (40.5)	13.25 (6.09)	t=-2.79, df=896, p=0.005
Female	602 (59.3)	14.39 (5.93)	
Ethnicity			
White	904 (89.0)	13.98 (5.88)	t=0.473, df=120, p=0.637
Other	112 (11.0)	13.64 (6.95)	
Education			
Graduate	366 (36.0)	15.76 (5.83)	t=6.93, df=895, p<0.001
Non graduate	642 (63.2)	12.94 (5.87)	
Employment			
Employed	239 (23.5)	17.24 (5.27)	t=10.50, df=426, p<0.001
Not employed	776 (76.4)	12.85 (5.85)	
Primary diagnosis			
Affective disorder	650 (64.0)	14.61 (5.82)	F=6.60, df=3,798, p<0.001
Personality disorder	55 (5.4)	12.54 (6.01)	
Psychotic disorder	170 (16.7)	12.45 (5.87)	
Other disorder	30 (3.0)	14.91 (23)	
Religious attendee			
Yes	368 (36.2)	14.18 (6.20)	t=0.89, df=896, p=0.376
No	644 (63.4)	13.81 (5.90)	
Contact with MH services (years)	11 (15.0)$^{+}$	n/a	rho=-0.112, p=0.001
Involuntary patient			
Yes	353 (34.7)	12.61 (6.08)	t=-4.77, df=899, p<0.001
No	663 (65.3)	14.61 (5.86)	

* Mean (s.d.), $^{+}$ (median, IQR)

The human capital scale accounted for 18.9% of the variance of RG-UK social capital scale and, as it was a related concept, we adjusted for this in the multivariate linear regression analysis (table 3). We sequentially entered the other covariates of the RG-UK social capital scale in the following blocks: socio-demographic variables (model 1); clinical variables (model 2); DISC score for experienced discrimination (model 3);

DISC anticipated discrimination items (model 4). The entry of experienced discrimination (model 3) into the model created a modest increase in R^2_{adj} from 0.26 to 0.31. The only anticipated discrimination item to remain significant in the model was 'choosing not to start a new relationship', though this made a negligible contribution to the variation explained. The only clinical variable correlated with increased social capital in the final model was not having been an involuntary patient. All the socio-demographic variables remained significant. However, the overall variance explained by all the variables in the multivariate model was somewhat low (31%).

Table 3: Linear regression analysis of correlates of RG-UK[1]

	Model 1			Model 2			Model 3			Model 4		
Variable	B	SE	p	β	SE	p	β	SE	p	β	SE	p
Age	-0.06	0.02	<0.001	-0.05	0.02	0.007	-0.07	0.02	<0.001	-0.07	0.02	<0.001
Employed	2.34	0.45	<0.001	2.07	0.45	<0.001	1.48	0.44	0.001	1.35	0.44	0.003
Female gender	1.19	0.37	0.001	1.09	0.37	0.004	1.26	0.36	<0.001	1.27	0.36	<0.001
University graduate	0.77	0.40	0.058	0.77	0.40	0.054	0.79	0.39	0.040	0.83	0.39	0.032
Not involuntary patient				1.05	0.41	0.010	0.91	0.39	0.021	0.96	0.39	0.015
Length of contact with MH services				-0.04	0.02	0.051	-0.02	0.02	0.338	-0.02	0.02	0.318
Diagnosis				-0.27	0.22	0.216	-0.272	0.21	0.198	-0.24	0.21	0.264
Experienced discrimination							-0.06	0.01	<0.001	-0.06	0.01	<0.001
Chose not to start work										-0.32	0.39	0.410
Chose not to start education										-0.07	0.43	0.863
Chose not to start a relationship										-0.77	0.38	0.046
Concealed diagnosis										0.12	0.42	0.783
Constant	15.83	1.36	<0.001	14.31	1.64	<0.001	15.61	1.58	<0.001	15.63	1.59	<0.001
Model summary	R^2_{adj}=0.24, F=50.83, p<0.001			R^2_{adj}=0.26, F=34.48, p<0.001			R^2_{adj}=0.31, F=40.53, p<0.001			R^2_{adj}=0.31, F=28.54, p<0.001		

[1] Adjusted for human capital

Next we tested the hypothesis that experience of discrimination from particular social groups was correlated with lower access to social capital from that group. Table 4 shows that experience of discrimination from any individual social group was associated with reduced access to social capital overall. However, experience of discrimination from friends and immediate family was associated with lower access to social capital from these groups, but this was not found for wider family, neighbours or mental health staff. The mean number of RG-UK items accessible from immediate family and friends were 6.11 (s.d.=4.56) and 4.57 (s.d.=4.35) respectively, in contrast to the next highest which was a mean of only 1.41 (s.d.=2.51) RG-UK items from wider family. It appears that discrimination from social groups had a larger effect on access to social capital when a larger proportion of RG-UK items were accessible via that group.

Table 4: Tie-specific discrimination and access to social capital

DISC experienced discrimination from:	RG-UK items accessible via group with experience of discrimination from		RG-UK items accessible via anyone	
	n	Mean (s.d.)	n	Mean (s.d.)
Friends	400	3.96 (3.98)***	356	13.01 (6.01)***
None from friends	536	5.20 (4.61	470	14.87 (5.86)
Neighbours	231	0.49 (1.03)	199	12.11 (5.98)***
None from neighbours	560	0.65 (1.28	490	14.59 (5.87)
Family	444	5.86[a] (4.54)*	400	13.42 (5.78)**
None from family	518	6.59[a] (4.47)	456	14.49 (6.15)
Family	444	1.34[b] (2.27)	400	13.42 (5.78)**
None from family	518	1.47[b] (2.65)	456	14.49 (6.15)
Mental health staff	309	0.78 (1.49)	281	12.84 (6.06)***
None from mental health staff	679	0.87 (1.67)	594	14.43 (5.93)

Difference in means (assessed using t-test):
* p<0.05; ** p<0.01; *** p<0.001
[a] Mean RG-UK items accessible via immediate family
[b] Mean RG-UK items accessible via wider family

Finally, we tested the hypothesis that domain-specific discrimination had differential effects on specific RG-UK domains. Experiencing discrimination from friends or family; in finding or keeping a job; in one's social life or being shunned by other people were thought to be associated with reduced access to social capital, given the importance of friends and family to access to social capital for our sample; a substantial literature on the effect of employment on social capital (Moerbeek and Flap, 2008); and the resourcefulness of weak ties (Granovetter, 1973). Each of the six DISC items representing these areas of experienced discrimination was associated with access to less social capital on the main RG-UK scale and on at least two sub-scales (table 5). Experiencing discrimination from friends, or in finding or keeping a job, had an effect on access to social capital across all RG-UK sub-scales. However, experiencing discrimination in broader social life primarily had an effect on the domestic resources sub-scale of the RG-UK.

Table 5 Domain-specific discrimination and access to social capital

DISC experienced discrimination:	RG-UK total scale		Domestic resources		Expert advice		Personal skills		Problem solving resources	
	n	Mean (s.d)	n	Mean (s.d.)	n	Mean (s.d.)	n	Mean (s.d)	n	Mean (s.d.)
From friends	356	13.01 (6.02)***	388	3.85 (2.05)**	366	3.76 (2.35)***	394	2.61 (1.59)**	386	2.82 (1.29)*
None from friends	470	14.87 (5.86)	516	4.22 (1.91)	492	4.63 (2.32)	525	2.91 (1.64)	515	3.04 (1.26)
From family	400	13.42 (5.78)**	433	3.88 (1.97)*	416	4.03 (2.29)*	441	2.73 (1.60)	431	2.85 (1.27)*
None from family	456	14.49 (6.15)	497	4.19 (1.99)	474	4.38 (2.42)	507	2.84 (1.66)	498	3.02 (1.26)
In finding a job	174	12.77 (6.09)***	184	3.58 (2.07)***	183	4.01 (2.27)**	187	2.41 (1.59)***	183	2.70 (1.31)***
None in finding a job	268	15.19 (6.05)	279	4.40 (1.91)	274	4.62 (2.48)	283	3.07 (1.70)	286	3.15 (1.25)
In keeping a job	154	13.52 (5.92)***	163	3.86 (1.99)***	160	4.19 (2.25)**	168	2.52 (1.63)***	165	2.90 (1.33)**
None in keeping a job	274	16.14 (5.76)	283	4.63 (1.86)	281	4.99 (2.37	286	3.32 (1.61)	287	3.26 (1.20)
In social life	289	13.69 (6.23)*	312	3.82 (2.00)***	297	4.21 (2.40)	319	2.69 (1.64)*	311	2.87 (1.34)
None in social life	480	14.76 (5.79)	524	4.34 (1.91)	503	4.45 (2.31)	532	2.94 (1.61)	523	3.05 (1.21)
Shunned by other people	448	13.39 (5.98)**	491	3.87 (1.98)**	468	4.06 (2.30)**	502	2.67 (1.62)*	491	2.83 (1.31)*
Not shunned	391	14.72 (5.99)	427	4.26 (1.98)	403	4.49 (2.44)	433	2.89 (1.61)	426	3.04 (1.21)

Difference in means (assessed using t-test):
* p<0.05; ** p<0.01; *** p<0.001

Discussion

This is the first study to show a correlation between experienced discrimination and reduced access to social capital in people with severe mental illness. Experienced discrimination made a modest contribution to the explained variance of social capital. Age, employment status and gender are known correlates of access to social capital amongst people with mental illness (Webber and Huxley, 2007; Webber *et al.*, 2011; Webber, 2010; Dutt and Webber, 2010) and also made a modest contribution to the variance explained. Therefore, if interventions were designed to increase access to social capital, they need to consider both reducing discrimination and supporting people to obtain employment where possible. However, it is important to note that our final model explained about one-third of the variance in social capital suggesting that other unmeasured variables need to be considered in future studies.

This study additionally found that people with experience of a previous involuntary admission to hospital under the Mental Health Act 1983 had reduced access to social capital, whilst controlling for the potential confounding effect of diagnosis and length of time known to mental health services. A history of involuntary admission is likely to be a proxy of severity of mental disorder, suggesting that provision of continuous and assertive community-based care to this group, including using interventions such as joint crisis plans (Henderson *et al.*, 2004), may be required in order to help them maintain their social networks and enhance their recovery.

Our finding that the anticipated discrimination item 'chose not to start a relationship' had an independent relationship with access to social capital in the regression model suggests that people with severe mental illness reduced their social contact when they experienced discrimination, which reduced their access to social capital. Although this item made a negligible contribution to the variance explained, and reverse causality cannot be ruled out, this may provide tentative support for the findings of previous studies (e.g. Link *et al.*, 2001; Moriarty *et al.*, 2012).

People who experienced discrimination from friends or family had reduced access to social capital from these social groups, which was the most common source of social capital for people in this sample and the UK general population (Webber and Huxley, 2007). Psycho-education with those closest to people with severe mental illness may help to reduce the discrimination experienced by people with severe mental illness and prevent a loss in their access to social capital.

A response rate of only 11% limits the generalisability of these findings. The sample was limited to people who had been in touch with mental health services within the previous six months. It is therefore possible that a significant number of those invited to take part were acutely unwell at the time which reduced the response rate. It is also possible that people who did not experience any discrimination chose not to participate as they may have thought that the survey was not relevant for them. Further, the possibility of reverse causality cannot be ruled out. People with access to less social capital possibly recounted more experiences of discrimination as they attempted to understand why their social networks were restricted or provided them with access to fewer resources. Longitudinal studies are required to establish the

direction of causality and to examine the impact of changes in experienced or anticipated discrimination on access to social capital. They are also required in order to determine how resources within people's networks can help to build resilience which reduces the harmful effect of discrimination on mental health.

This study provides tentative evidence of an association between experienced discrimination and social capital, which appears important for health and wellbeing (Kawachi *et al.*, 2007). Mental health services could help to reduce discrimination by supporting clinicians to practice in anti-discriminatory ways and to work closely with individuals' friends and families to minimise their discriminatory behaviour towards them. Often this behaviour is unintentional, such as lowering of expectations, avoiding social situations, and increased paternalism that can impact negatively on an individual's recovery. Additionally, supporting people with severe mental illness to increase their access to social capital may empower them in the face of experienced or anticipated discrimination.

Acknowledgements

The authors thank the participating NHS Trusts, the Viewpoint interviewers, and the Time to Change management team.

Declaration of interests

This work was supported by the Big Lottery Fund; Comic Relief; and SHiFT (Shifting Attitudes to Mental Illness), U.K. Government Department of Health. Dr. Henderson, Ms. Corker, Ms. Hamilton, Dr. Rose, Mr. Williams, and Dr. Pinfold were supported by a grant to TTC from the Big Lottery Fund and Comic Relief and a grant

from SHiFT. Dr. Henderson, Mr. Williams, and Dr. Thornicroft are funded by a National Institute for Health Research (NIHR) applied program grant RP-PG-0606-1053 awarded to the South London and Maudsley NHS Foundation Trust. Dr. Rose and Dr. Thornicroft are also supported by the NIHR Specialist Mental Health Biomedical Research Centre, Institute of Psychiatry, King's College London, and the South London and Maudsley NHS Foundation Trust. Dr. Henderson is also funded by a grant from the Guy's and St. Thomas' Charity and a grant from the Maudsley Charity. The views expressed are those of the authors and not necessarily those of the NHS, NIHR, or the U.K. Government Department of Health.

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